

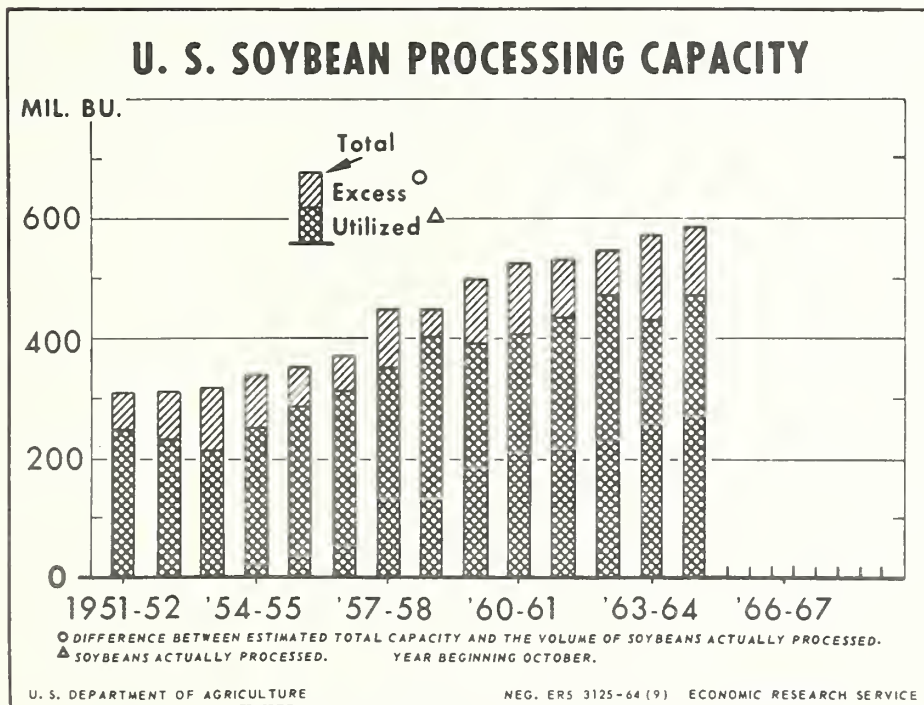
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U. S. SOYBEAN PROCESSING CAPACITY CONTINUES TO EXPAND

by

George W. Kromer



U. S. soybean processing capacity in 1964-65, estimated at 585 million bushels, will almost double the capacity of about 300 million bushels recorded in 1951-52. Excess capacity--the difference between total capacity and soybeans actually processed--has averaged about 20 percent since 1951-52 even though crushings have increased steadily. Expanding plant capacity has exceeded supplies of soybeans

available for crushing, thereby resulting in excess or unused processing capacity.

Soybean crushings during 1964-65 are forecast at around 470 million bushels and total capacity at 585 million bushels. If these estimates hold, the soybean processing industry will operate at about 80 percent of capacity during 1964-65 (see page 48).

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In recent years, the U. S. soybean processing industry has expanded its plant capacity rapidly along with the growth in soybean production. Since the 1951-52 season, soybean processing capacity has almost doubled, rising from about 310 million bushels that year to an estimated 585 million for 1964-65. ^{1/} However, the rate of expansion has slowed some in recent years. (See cover chart). During the same period, the number of mills processing soybeans dropped sharply from 193 to 119 but the average mill size increased.

Processing capacity exceeds actual crushing volume despite the sharp upward trend in soybean production and the steady reduction in the number of mills. The excess capacity results primarily from 2 factors: Building of larger and more efficient mills, and enlargement of facilities of active mills. These changes occurred as plants shifted from older mechanical methods of crushing soybeans to solvent processing. In addition, plants can now efficiently process more than 1 type of oilseed and thereby have greater operational versatility throughout the year. With the construction of large solvent extraction mills and the advent of the horizontally integrated processor (mixed feed-crushing operation), processors' margins were reduced progressively from 35 cents per bushel in 1951-52 to only 6 cents for the industry as a whole in 1963-64. ^{2/} Solvent extraction is the more efficient processing technique and now accounts for over 95 percent of all soybeans processed in this country.

Unused Processing Capacity Averages 20 Percent

Since 1951-52, soybean crushings have increased in about the same proportion as processing capacity. Crushings in 1951-52 amounted to 244 million bushels compared with the forecast of 470 million bushels for 1964-65. As mentioned earlier, capacity grew from 310 million to 585 million bushels in the same period. During the entire period, the ratio of utilized capacity (crushings) to total capacity has averaged about 80 percent (table 32).

Excess (or unused) processing capacity for the industry as a whole has averaged an estimated 20 percent since 1951-52. Excess processing capacity, as used here, means the difference between the estimated capacity and the quantity of soybeans actually crushed. For instance, during the 1963-64 processing season, the estimated crushing capacity was 575 million bushels of

^{1/} Estimates of soybean processing capacity for 1951, 1956, and 1957 were developed from Census data, based on the "peak" month crush for individual mills. Capacity estimates for 1958-64 (except 1961) are from trade sources. Estimates for gaps in the series are based on USDA interpolations.

^{2/} Processors' margins as used here represent the spread between the price paid by crushers for soybeans and the combined value of soybean products (oil and meal). This calculation is based on simple averages of monthly cash prices.

Table 32.--Estimated number of soybean oil mills and processing capacity in the United States, 1951-64

Year beginning October	Proces- sing mills <u>1/</u>	Processing capacity			Ratio of utilized to total
		Total <u>2/</u>	Utilized <u>3/</u>	Excess <u>4/</u>	
	<u>Number</u>	<u>Mil. bu.</u>	<u>Mil. bu.</u>	<u>Mil. bu.</u>	<u>Pct.</u>
1951-52	193	310	244	66	79
1952-53	174	(315)	234	81	74
1953-54	159	(320)	213	107	67
1954-55	162	(340)	249	91	73
1955-56	152	(355)	283	72	80
1956-57	144	370	316	54	85
1957-58	139	450	354	96	79
1958-59	130	450	401	49	89
1959-60	121	500	393	107	79
1960-61	123	525	402	123	77
1961-62	126	(535)	439	96	82
1962-63	128	550	475	75	86
1963-64	127	575	441	134	77
1964-65	119	585	<u>5/</u> 470	115	80

1/ Estimates developed from Census data and trade directories. Includes cottonseed and other oilseed mills that process significant quantities of soybeans.

2/ Trade estimates 1958 to date (except 1961). Data in brackets are USDA interpolations.

3/ Soybeans actually crushed.

4/ Difference between total capacity and soybeans utilized (crushed).

5/ Forecast.

soybeans. Since only 441 million bushels actually were crushed, the indicated excess processing capacity was 134 million bushels or 23 percent.

Can excess capacity of the industry be termed "over-expansion"? This is debatable. In no year is it feasible for every mill to achieve 100 percent utilization of its processing facilities. Despite the competitive drive of each processor to utilize as much of his crushing capacity as possible, average utilization for the industry obviously is determined by such variable factors as size of crop, soybeans available for crushing, and market prices for soybean oil and meal. Processors know that at any specific price a certain quantity of beans must be processed to meet overhead costs and earn an acceptable profit. With excess capacity, however, this goal may not be possible for all mills.

During the 1963-64 season, a squeeze on processors' margins developed because of high soybean prices in relation to low prices for soybean oil and a decline in soybean meal prices in the second half of the marketing year. The effect probably was felt most by mills whose operations were not integrated with mixed feed and other sideline activities. Some mills were unable to compete and were forced to curtail crushing operations or to shut down for the rest of the season. Nevertheless, during that season the industry showed the second largest crush on record.

Annual Average Crush Per Mill Increasing

The number of mills processing soybeans declined from 193 in 1951-52 to 119 in 1964-65, a decrease of 74 mills or approximately 38 percent. But at the same time, average annual processing volume per mill increased from 1.3 million bushels in 1951-52 to 3.9 million bushels in 1964-65, or by about 200 percent. By operating on a large scale, plants are able to take advantage of savings arising from both the processing of the soybeans and the marketing of the products.

Outlook

Soybean production in the United States is expected to continue its long-run uptrend over the next few years, even though temporary setbacks such as that in 1964 will occur. The soybean processing industry will continue to expand facilities in anticipation of larger supplies; excess capacity will continue to exist. Unused capacity will continue to exist since soybean production will not likely develop into a pattern that will coincide with crushing facilities. Trends toward larger but fewer mills, the integration of soybean crushing with feed-mixing and other sideline activities, and excess processing capacity all will tend to keep continued pressure on processing margins.

Any important future expansion in U. S. output of edible fats and oils will come primarily from soybeans. Soybeans are grown as a direct source of oil and meal whereas competitive cottonseed is a byproduct of the cotton industry and lard a byproduct of the hog industry. Demand prospects suggest a continued uptrend for soybeans and products at a rate greater than the growth in population. Thus, the soybean processing industry appears to be on the threshold of making further significant gains as soybeans play an even greater role in the fats and oils economy of the United States and the World.

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